ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY MEMORANDUM

RIHU99,041

DATE: 16 February 1999

TO: Nancy Riveland, Project Manager
EPA Region 9 Office of Superfund Programs

Stephanie Ciekot, Project Manager
ADEQ Federal Projects Unit

THRU: Bill Ruddiman, R.G., Supervisor
Remedial Investigations Hydrology Unit

FROM: D. Nicole Fatherly, R.G., Hydrologist
Remedial Investigations Hydrology Unit

SUBJECT: Technical Memorandum: South Indian Bend Wash, former Circuit Express facility, 2149 E. Fifth Street, Tempe, AZ, SVMW-3 VLEACH and Groundwater Mixing Cell Model assumptions and calculations

Purpose

The purpose of this technical memorandum is to document the input parameters used in the VLEACH and groundwater mixing cell model runs for SVMW-6 located at the above referenced location. Information in this memo will be used by EPA, Region 9 to continue or conclude the vadose zone evaluation process as detailed in the SIBW Soil Record of Decision (ROD).

Introduction

Since 1993, the ADEQ has assisted the EPA with the evaluation of sites which have been listed as Potentially Responsible Parties (PRPs) in Indian Bend Wash-South Superfund Study Area (SIBW). Sites on this list must be evaluated for potential contribution to groundwater contamination from soil in accordance with the Volatile Organic Compounds Soil Investigation Record of Decision (ROD) (EPA, 1993). The SIBW Soil ROD specifies the decision criteria required for compliance with the ROD. The inputs required for making these decisions are soil and soil gas data, installation of soil vapor monitoring wells (SVMWs), and modeling of the soil gas data. Based on the results of the modeling, a Soil Vapor Extraction Presumptive Remedy may be implemented, if a soil cleanup is required by the ROD.

In 1994, at the request of EPA, the Remedial Investigations Hydrology Unit (RIHU) investigated approximately 30 properties that reported using volatile organic compounds on their EPA 104 E self evaluation form. Shallow soil gas sampling was conducted at these properties by RIHU using the ADEQ's Preliminary Assessment/Site Investigation (PASI) Geoprobe® rig. Soil vapor samples were collected at five feet below ground surface (bgs) and analyzed for chlorinated and aromatic hydrocarbons by the EPA Field Analytical Services Program (FASP) mobile laboratory, and using EPA Method 8010/8020 by dual-column Gas Chromatography. Based on the soil vapor results, six

sites were selected for installation of a multiport SVMW. ADEQ agreed to install and sample the SVMWs, as a contractor for EPA, and model the soil vapor results using VLEACH and a groundwater mixing cell model. VLEACH is specified as one of the recommended modeling codes in the SIBW Soil ROD. ADEQ modeling outputs will be given to CH2MHill, EPA's consultant, for final report preparation.

Below are the parameters, calculations and documentation used to create the VLEACH and Groundwater Mix Cell Model input files based on the SVMW-3 soil gas data.

Site Background
Soil gas investigation work was conducted in 1988 and 1990 by EPA contractors and in 1994 by the ADEQ. The information collected from these surveys was used to locate a vapor monitoring well (SVMW) on the property in the areas of highest soil gas concentration. The information collected from these wells will be used to determine if this facility is a currently contributing source of groundwater contamination as required by the SIBW Soil ROD.

Installation of SVMW-3
A 9-inch well boring was drilled to 60 feet bgs at location SVMW-3. The borings were drilled using a rotosonic drilling rig and soil samples were collected according to the ADEQ Field Sampling Plan (ADEQ, June 1996). Groundwater was not encountered in SVMW-3. SVMW-3 was completed from 52 feet to ground surface on June 25, 1996. Three soil vapor intervals were installed in each boring using one inch diameter, PVC schedule 80 casing and 80 slot screen. Pea gravel (1/4 inch) was used for the gravel pack and the intervals were separated by alternating layers of bentonite chips and bentonite/cement grout (ADEQ, 1996). See the attached well schematic figure.

Soil Vapor Sampling of SVMW-3
In 1998, three sets of soil vapor samples were collected from every interval in the well and analyzed according to the ADEQ Field Sampling Plan. The samples were collected and shipped in SUMMA canisters to Quanterra Environmental Services in City of Industry, California for analysis. Based on the analytical data, perchloroethene (PCE) and trichloroethene (TCE) were present in the highest relative concentrations in all three sampling rounds. Therefore, these compounds were used in the modeling effort as the contaminants of concern.

Collection of Physical Parameter Soil Samples
Soil samples were collected and analyzed for the following physical characteristics: soil moisture, bulk density, particle sizing, and total organic carbon (TOC) content. The information from these samples is used to calibrate the model. Four samples were collected in brass sleeves for soil moisture dry bulk density. The samples were transported to Aquatic Consulting and Testing Inc., Tempe, Arizona for analysis. Soil moisture was analyzed using ASTM D2216. Bulk Density was analyzed using ASTM D2937. In addition, seven grab samples were analyzed for particle size and TOC, one representing every eight to ten feet of borehole in SVMW-3. Particle samples were analyzed using ASTM D422 and D858. TOC was analyzed using the Walkley-Black method.

Selection of VLEACH Input Parameters

VLEACH input parameter files were created by the RIHU. Listed below are descriptions of how each parameter was selected. Those parameters which were already selected by the EPA are indicated as such and can be found in the attached documentation. Parameters selected by the RIHU are referenced and stated or directed to the attached documentation. Copies of the input files for PCE & TCE, VLEACH Model Data Sheets, soil vapor conversions and calculations are attached for SVMW-3.

Number of Polygons, Timestep, Simulation Time, Output Interval, Profile

These parameters were selected by EPA/CH2MHILL for SIBW vadose zone investigations. See attached VLEACH Model Data Sheets.

Organic Carbon Distribution Coefficient (k_{oc})

This is a constant:	PCE	364 mL/g	(in Graf, 1993)
	TCE	126 mL/g	(in Graf, 1993)

Henry's Constant (k_h)

This is a constant:	PCE	0.546	(in Graf, 1993)
	TCE	0.30	(in Graf, 1993)

Water Solubility

This is a constant:	PCE	200 mg/L	(in Graf, 1993)
	TCE	1100 mg/L	(in Graf, 1993)

Free Air Diffusion Coefficient

This is a constant provided by EPA/CH2MHILL for SIBW vadose zone investigations:

PCE: 0.63936 m^2/day
TCE: 0.68 m^2/day

Area

SVMW-3: 10,975 ft^2

This area was drawn on a copy of an aerial photograph by ADEQ and measured by EPA/CH2MHILL. See attached diagram.

Vertical Cell Dimension

This parameter was selected by EPA/CH2MHILL. These parameters were selected by EPA/CH2MHILL for SIBW vadose zone investigations.

Recharge Rate

This parameter was selected by EPA/CH2MHILL. These parameters were selected by EPA/CH2MHILL for SIBW vadose zone investigations.

Dry Bulk Density (ρ_b)
RIHU arithmetically averaged the data from the fine and coarse intervals separately and then calculated a weighted average for the whole profile of the well. See attached general calculations.

Effective Porosity (θ_E)
Total porosity was calculated by a weighted average using the dry bulk density data collected from each well and divided by an average granitic bulk density provided by EPA/CH2MHill. An air filled porosity number was calculated by subtracting the total porosity value from the water filled porosity value. The air filled porosity value is used as the "effective porosity" input value for VLEACH at the direction of EPA/CH2MHill. See attached general calculations. The "effective porosity" definition listed in the VLEACH manual does not provide adequate guidance to support this calculation. RIHU recommends that the above porosity calculations be assessed by EPA/CH2MHill as to their applicability for use in the VLEACH 2.2a model version used in this effort.

Volumetric Water Content (θ_{bw})
RIHU calculated the Volumetric Water Content using the dry bulk density data and a weighted average of the moisture parameter for the fine and coarse interval of the complete profile of the well. See attached general calculations.

Soil Organic Carbon Content (f_{oc})
RIHU calculated the Soil Organic Carbon Content using TOC data and the Bouwer- Rice Correction to compensate for the cobbly nature of the soils. The adjusted TOC is then converted to a fraction organic carbon number for each well. See Attached general calculations.

Concentration of Recharge Water, Upper, and Lower Boundary Conditions, Plot time, Plot Variable
These parameters were selected by CH2MHILL for SIBW vadose zone investigations.

Cell Number
RIHU used the construction depth of the borehole, which is 60 feet. This is equivalent to 60 cells in the input file.

Initial Contaminant Concentration in Cells
Three sampling rounds were collected from each soil vapor interval. After comparing the intervals to each other by compound, the highest soil gas concentration was selected to represent the interval concentration for each compound. PCE and TCE were selected for modeling in this manner and depth intervals were specified for each interval. The contaminant data was manipulated using the Mass Estimate Equation which can be found in the attached chemical specific calculations. The VLEACH modeling input file was created using the depth interval and the arithmetically manipulated contaminant concentration.

Selection of Groundwater Mixing Cell Model Parameters

After the PCE data was modeled with VLEACH, the calculated mass from the vadose zone was input into the Groundwater Mixing Cell Model (GW Mix Cell). The input parameter files were constructed by the RIHU. Listed below are descriptions of how each parameter was selected. Those parameters which were already set by the EPA will be indicated as such and can be found in the attached documentation. Parameters selected by the RIHU will be referenced and stated or directed to the attached documentation. A copy of the first page of the spreadsheet template for PCE and TCE is attached for each well. RIHU was originally responsible for running the GW Mix Cell Model. The GW Mix Cell will be completed by CH2MHILL due to difficulties with converting the spreadsheet code from Microsoft Excel to Novell Quattro Pro for RIHU use.

Thickness, Width, Length

RIHU measured these values from the aerial photographs used to calculate the Area input for VLEACH. See attached figure.

Hydraulic Conductivity (K), Porosity(θ_E)

RIHU used the Hydraulic Conductivity information collected from groundwater monitoring well SIBW-6U during a well specific pump test. RIHU calculated an effective porosity using the dry bulk density data collected from each well. See attached general calculations.

RHOB, Days, Gradient

These parameters were selected by CH2MHILL for SIBW vadose zone investigations.

Organic Carbon Distribution Coefficient (k_{oc}), Soil Organic Carbon Content (f_{oc})

RIHU used the same values as those used in the VLEACH input files for SVMW-3. See "Selection of VLEACH Input Parameters" section of this memo.

References

ADEQ. June 1996. *Field Sampling Plan for Seven Sites in South Indian Bend Wash, Tempe, Arizona.*

EPA. September 1993. *Record of Decision Operable Unit: VOCs in Vadose Zone, Indian Bend Wash Superfund Site, South Area, Tempe, Arizona.*

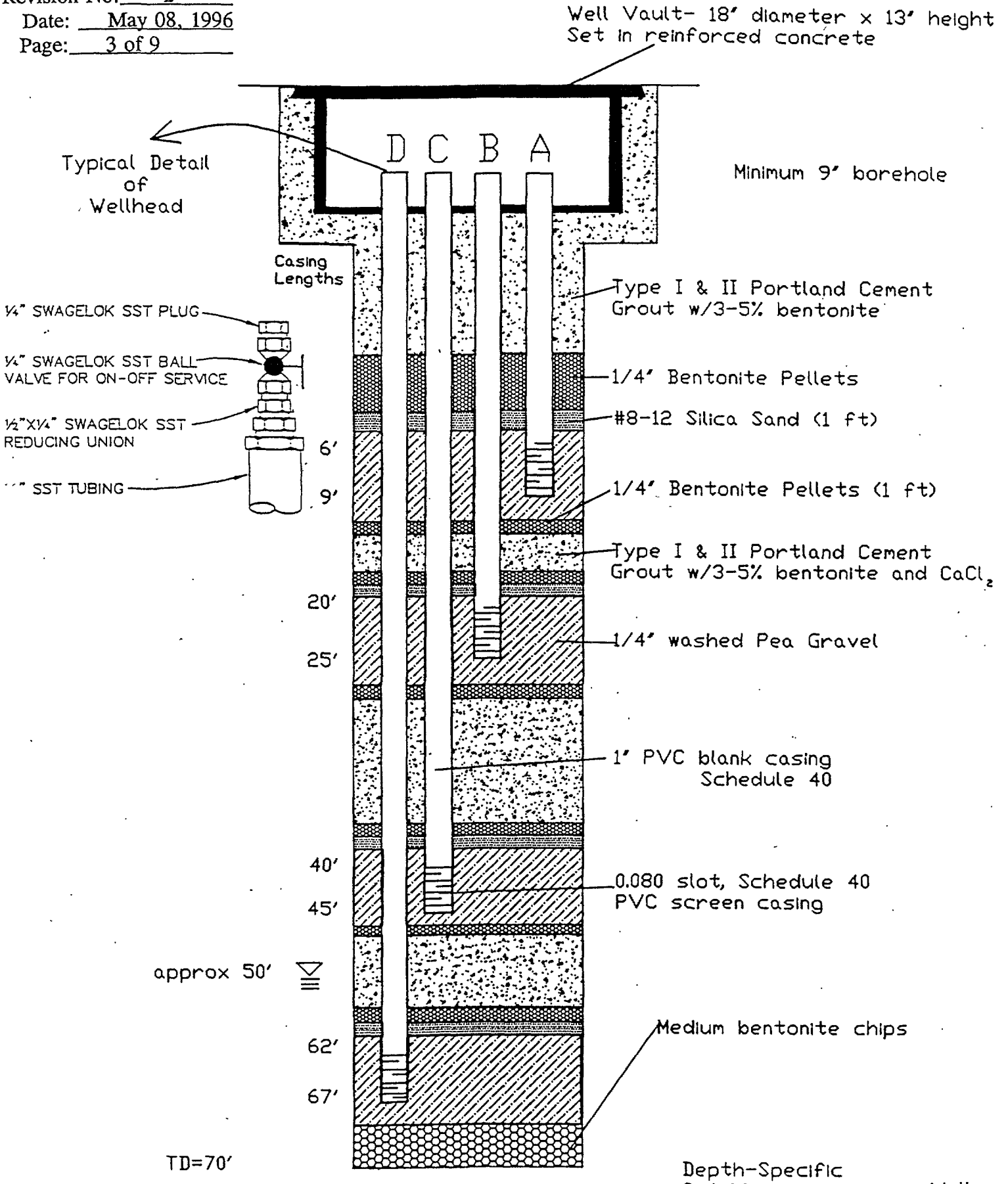
Graf. C. June 1993. *Behavior of Organic Contaminants in the Environment.*

Please contact (602) 207-4411 with questions or comments.

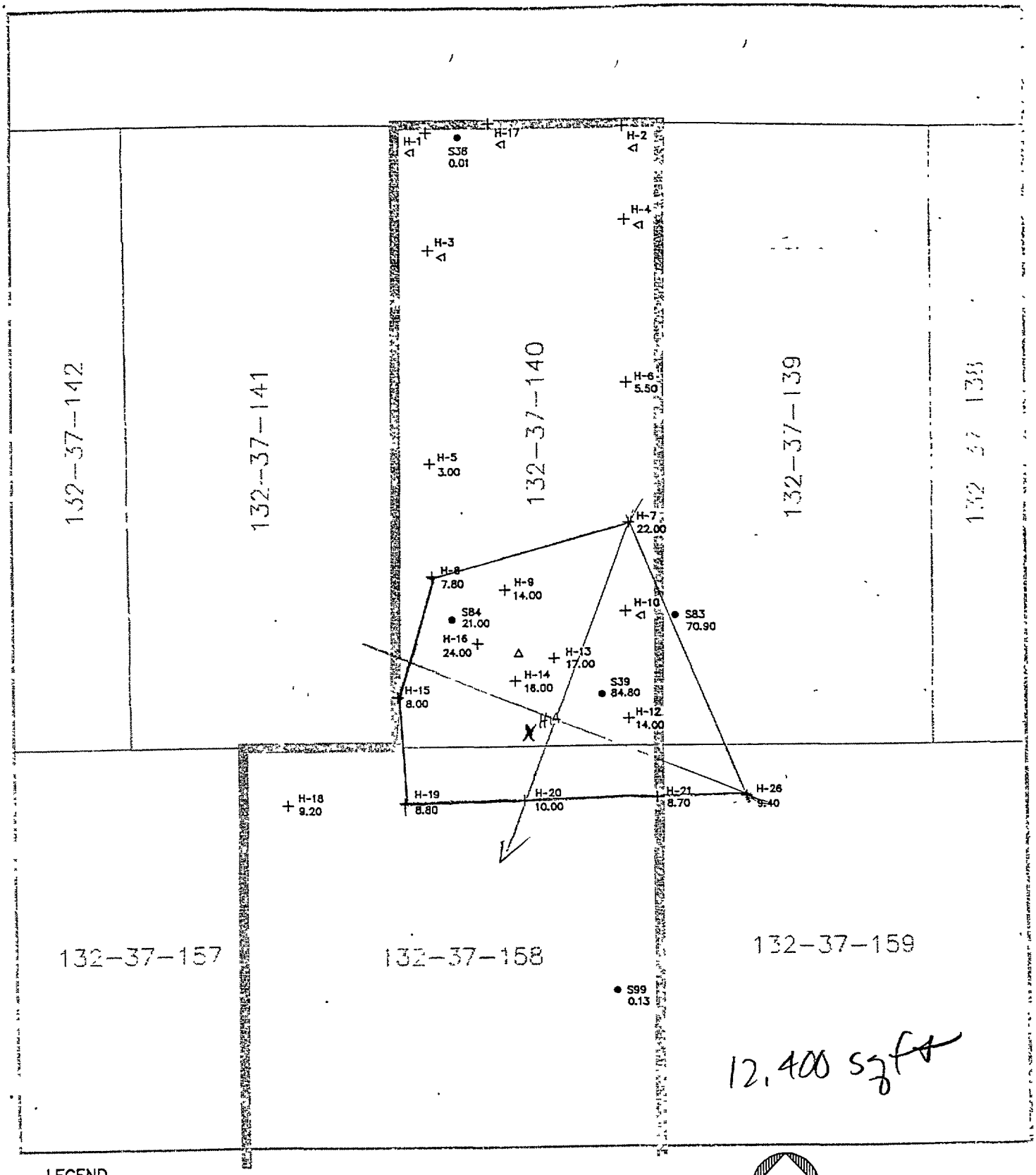
cc: Maria Fant, ADEQ FPU Project Manager
Kim Hanagan, CH2MHILL/Redding

ATTACHMENTS

SVMW-3



Depth-Specific
Soil Vapor Monitoring Well
Construction Diagram
(Not to scale)



LEGEND

+ B-5 5.50 .... 1994 SAMPLE LOCATION & CONCENTRATION

• S60 0.05 .... 1988 OR 1990 SAMPLE LOCATION & CONCENTRATION

△ .... DRYWELL LOCATION

132-37-XXX .... PARCEL NUMBER

.... SUBSITE BOUNDARY

.... PARCEL BOUNDARY

NOTE: Soil Gas Contamination given in µg/l.

N

50 0 50

FIGURE 4-9
SUBSITE 4
PCE SOIL GAS CONCENTRATIONS
INDIAN BEND WASH - SOUTH FINAL RI

829F4-12.DWG r12 JUNE 1997

SVMW-3 2149 E. 5th Street

General Calculations

Dry Bulk Density

collected value % fraction

ρ_B

fn: 1.669 g/cm³ · 0.15 = 0.25

cr: 1.939 g/cm³ · 0.85 = 1.64 → 1.89 g/cm³

[CR: (AVG) 2.02, 1.97, 1.81 = 1.939 g/cm³]

[fn: (0-9ft) = 15%; cr: (10-60ft) = 85%]

TOTAL Porosity

$\theta_T = 1 - \frac{\rho_B}{\rho_p}$

ρ_p = particle density (granitic materials) = 2.65 g/cm³

$= 1 - \frac{1.89 \text{ g/cm}^3}{2.65 \text{ g/cm}^3} =$

$\theta_T = 0.287$ nv

θ_ϵ

$\theta_\epsilon = \theta_T - H_2O$ Vol Content (θ_{bw})

$= 0.287$ nv $- 0.044$ nv $=$ 0.243 air filled porosity

H_2O Volume Content

fn: 1.6 %

cr: (avg) 2.1, 6.4, 10.2 = 6.2%

θ_g

fn: 0.016 · 0.15 = 0.0024

0.062 · 0.85 = 0.0502 → θ_g = 5.51 mg/kg

SVMW-3 2149 E 5th Street

General Calculations

H_2O Volume Contents (cm³)

$\rho_w = 1\ g/cm^3$

$\theta_w = \frac{\rho_b \theta_g}{\rho_w} = \frac{1.89\ g/cm^3 \cdot 5.51\ mg/kg}{1\ g/cm^3}$

θ_w

$= \boxed{10.4\% = 0.104}$

Bouwer Rice Correction

V_R = vol fraction stones (estimated)

69.7
67.4
47.3
47.1

V_R = (avg) 57.9 nu

$\theta_{bw} = (1 - V_R)\ \theta_w$

θ_{bw}

$= (1 - 0.58)(0.104)$

$\boxed{= 0.044\ nu}$

Fraction Organic Carbon

fn TOC = 300 mg/kg

cl TOC = avg [330, 220, 260 = 270 mg/kg]

weighted avg = fn = 300 mg/kg · 0.15
cl = 270 mg/kg · 0.85
> 201.6 mg/kg

f_{OC}: $(1 - V_R)$ TOC $\div 10^6$

$= (1 - 0.58)\ 201.6\ mg/kg \div 10^6\ mg/kg$

$= 0.0000847\ nu$

SVMW-3 2149 E 5th Street ①

Polygon Definition 10,975 ft².

PCE

Chemical Mass Estimates

ρ_b = 1.89 g/cm³ (kg/l)
θ_E = 0.243
θ_{bw} = 0.044
TOC = 201.6 mg/kg
Area = 12,400 ft²
foc = 0.0000847 nu

K_D = 0.031 l/kg (cm³/g)
K_{OC} = 364 cm³/g
H_D = 0.546 nu
C_G A = 4.2 ug/l
B = 9.9 ug/l
C = 353.9 ug/l

$$K_D = K_{OC} \cdot f_{OC} = 364\ cm^3/g \cdot 0.0000847$$
$$= 0.0308$$
$$= \boxed{0.031\ l/kg\ (cm^3/g)}$$

$$C_{T(x)} = \left[C_G \left[\frac{K_D \rho_B}{H_D} + \frac{\theta_{bw}}{H_D} + (\theta_E - \theta_{bw}) \right] \right] \div \rho_B$$

$$C_{T(A)} = \left[4.2\ ug/l \left[\frac{0.031\ l/kg \cdot 1.89\ kg/l}{0.546\ nu} \div \frac{0.044\ nu}{0.546\ nu} + (0.243_{nu} - 0.044_{nu}) \right] \right] \div 1.89\ kg/l$$

(0.107) (0.081) 0.199

$$= \boxed{0.86\ ug/kg}$$

$$C_{T(B)} = \left[9.9\ ug/l \left[\frac{0.031\ l/kg \cdot 1.89\ kg/l}{0.546\ nu} + \frac{0.044\ u}{0.546\ nu} + (0.243 - 0.044) \right] \right] \div 1.89\ kg/l$$

$$= \boxed{2.03\ ug/kg}$$

SVMW-3 2149 E 5th Street

Chemical Mass Estimates (cont)

PCE

$$C_{T(C)} = \left[353.9\ ug/\ell \left[\frac{0.031\ \ell/kg \cdot 1.89\ kg/\ell}{0.546\ nu} + \frac{0.044\ nu}{0.546\ nu} + (0.243\ nu - 0.044\ nu) \right] \right] \div 1.89\ kg/\ell$$

$$= \boxed{72.47\ ug/kg}$$

TCE

$K_D = 0.012\ \ell/kg\ (cm^3/g)$ $H_D = 0.30$

$K_{OC} = 126\ cm^3/g$ C_G A = 0.020 ug/ℓ

B = 0.045 ug/ℓ

C = 8.48 ug/ℓ

$$K_D = K_{OC} \cdot f_{OC} = 126\ cm^3/g \cdot 0.0000847\ nl$$

$$= 0.012\ \ell/kg\ (cm^3/g)$$

$$C_{T(X)} = \left[C_G \left[\frac{K_D \rho_B}{H_D} + \frac{\theta_{bw}}{H_D} + (\theta_\varepsilon - \theta_{bw}) \right] \right] \div \rho_B$$

$$C_{T(A)} = \left[0.020\ ug/\ell \left[\frac{0.012\ \ell/kg \cdot 1.89\ kg/\ell}{0.546\ nu} \right]_{(0.042)} + \frac{0.044\ nu}{0.546\ nu}_{(0.081)} + (0.243\ nu - 0.044\ nu)_{(0.199)} \right] \div 1.89\ kg/\ell$$

$$= \boxed{0.0034\ ug/kg}$$

SVMW-3 2149 E 5TH Street

Chemical Mass Estimates (cont)

TCE

$$C_{T(B)} = \left[0.045 \text{ ug/l} \left[\frac{0.012 \text{ l/kg} \cdot 1.89 \text{ kg/l}}{0.546 nu} + \frac{0.044 nu}{0.546 nu} \right] + (0.243 nu - 0.044 nu) \right] \div 1.89 \text{ kg/l}$$

$$= \boxed{0.00077 \text{ ug/kg}}$$

$$C_{T(C)} = \left[8.48 \text{ ug/l} \left[\frac{0.12 \text{ l/kg} \cdot 1.89 \text{ kg/l}}{0.546 nu} + \frac{0.044 nu}{0.546 nu} \right] + (0.243 nu - 0.044 nu) \right] \div 1.89 \text{ kg/l}$$

$$= \boxed{1.45 \text{ ug/kg}}$$

SVMW-3, 2194 E. 5th Street, PCE

Groundwater Mixing Cell Template

Thickness (ft):	53	K (ft/d):	164	Koc (ml/g):	364
Width (ft):	135	Gradient (ft/ft):	1.00E-03	foc (-):	2.02E-04
Length (ft):	108	Porosity (-):	0.29	rhob (g/cm3):	1.89

Cell Volume (ft3):		Darcy Vel (ft/d):	0.164	Retard. + Porosity(-):	0.429
Days/timestep:	365.25	GW Flux (ft3/d):	1173		

(These two columns are from VLEACH)

Time Step (Number)	Time at end of Time step (Years)	Mass from Vadose Zone (g*A/timestep)	Mass from Vadose Zone (g/day/ft2)	Calculated Concentration (g/ft3)	Calculated Concentration (ug/l)
0	0	0.00	0.00E+00	0.00E+00	
1	1	25.336	4.76E-06	4.29E-05	1.52
2	2	18.698	3.51E-06	4.34E-05	1.53
3	3	15.644	2.94E-06	3.84E-05	1.36
4	4	13.928	2.62E-06	3.41E-05	1.20
5	5	12.849	2.41E-06	3.11E-05	1.10
6	6	12.135	2.28E-06	2.91E-05	1.03
7	7	11.649	2.19E-06	2.77E-05	0.98
8	8	11.313	2.12E-06	2.68E-05	0.94
9	9	11.079	2.08E-06	2.61E-05	0.92
10	10	10.912	2.05E-06	2.56E-05	0.91
11	11	10.792	2.03E-06	2.53E-05	0.89
12	12	10.705	2.01E-06	2.51E-05	0.89
13	13	10.638	2.00E-06	2.49E-05	0.88
14	14	10.587	1.99E-06	2.48E-05	0.87
15	15	10.546	1.98E-06	2.46E-05	0.87
16	16	10.512	1.97E-06	2.46E-05	0.87
17	17	10.483	1.97E-06	2.45E-05	0.86
18	18	10.457	1.96E-06	2.44E-05	0.86
19	19	10.433	1.96E-06	2.44E-05	0.86
20	20	10.411	1.95E-06	2.43E-05	0.86
21	21	10.390	1.95E-06	2.43E-05	0.86
22	22	10.369	1.95E-06	2.42E-05	0.86
23	23	10.350	1.94E-06	2.42E-05	0.85

SVMW-3, 2194 E. 5th Street, TCE

Groundwater Mixing Cell Template

Thickness (ft):	53	K (ft/d):	73	Koc (ml/g):	126
Width (ft):	135	Gradient (ft/ft):	1.00E-03	foc (-):	8.47E-05
Length (ft):	108	Porosity (-):	0.243	rhob (g/cm3):	1.89

Cell Volume (ft3):		Darcy Vel. (ft/d):	0.073	Retard. + Porosity(-):	0.263
Days/timestep:	365.25	GW Flux (ft3/d):	522		

(These two columns are from VLEACH)

Time Step (Number)	Time at end of Time step (Years)	Mass from Vadose Zone (g*A/timestep)	Mass from Vadose Zone (g/day/ft2)	Calculated Concentration (g/ft3)	Calculated Concentration (ug/l)
0	0	0.00	0.00E+00	0.00E+00	
1	1		0.00E+00	0.00E+00	0.00
2	2		0.00E+00	0.00E+00	0.00
3	3		0.00E+00	0.00E+00	0.00
4	4		0.00E+00	0.00E+00	0.00
5	5		0.00E+00	0.00E+00	0.00
6	6		0.00E+00	0.00E+00	0.00
7	7		0.00E+00	0.00E+00	0.00
8	8		0.00E+00	0.00E+00	0.00
9	9		0.00E+00	0.00E+00	0.00
10	10		0.00E+00	0.00E+00	0.00
11	11		0.00E+00	0.00E+00	0.00
12	12		0.00E+00	0.00E+00	0.00
13	13		0.00E+00	0.00E+00	0.00
14	14		0.00E+00	0.00E+00	0.00
15	15		0.00E+00	0.00E+00	0.00
16	16		0.00E+00	0.00E+00	0.00
17	17		0.00E+00	0.00E+00	0.00
18	18		0.00E+00	0.00E+00	0.00
19	19		0.00E+00	0.00E+00	0.00
20	20		0.00E+00	0.00E+00	0.00
21	21		0.00E+00	0.00E+00	0.00
22	22		0.00E+00	0.00E+00	0.00
23	23		0.00E+00	0.00E+00	0.00

2149 E. 5th Street, SVMW-3, TCE contamination scenario

```
  1
       0.1       100.         1.        10.
      126.        .30      1100.         .68
Polygon I
     12400         1.      .0375      1.89       .243       .044   .0000847
         0        -1.        -1.
   53y            1
    1    6      .0034
    7   25     .00077
   26   53       1.45
```

2149 E. 5th Street, SVMW-3, PCE contamination scenario
1
0.1 100. 1. 10.
364. .546 200. .63936
Polygon I
12400 1. .0375 1.89 .243 .044 .0000847
0 -1. -1.
53y 1
1 6 .86
7 25 2.03
26 53 72.47

VLEACH MODEL DATA SHEET

Modeler(s): N. Fatherly
Date: 2-10-99
Chemical Name: PCE

Simulation Data

Title: 2149 E 5th Street, SVMW-3

Number of Polygons:	1	
Timestep:	0.10	(years)
Simulation Time:	100.0	(years)
Output Time Interval	1.0	(years)
Profile Time Interval	10.0	(years)
Organic Carbon Distribution Coefficient	364	(ml/g)
Henry's Constant	0.546	
Water Solubility	200	(mg/L)
Free Air Diffusion Coefficient	0.63936	(m^2/day)

Polygon Data

Title: SV -3

Area	12,400	(feet^2)
Vertical Cell Dimension	1	(feet)
Recharge Rate	0.375	(feet/year)
Dry Bulk Density	1.89	(g/cm^2)
Effective Porosity	0.243	
Volumetric Water Content	0.044	
Soil Organic Carbon Content	0.0000847	
Concentration of Recharge Water	0	(mg/L)
Upper Boundary Condition	-1	(mg/L)
Lower Boundary Condition	-1	(mg/L)
Cell Number	53	
Initial Contaminant Concentration in Cells	A 0.86 C 72.47 B 2.03	(µg/kg)

VLEACH MODEL DATA SHEET

Modeler(s): N. Fatherly
Date: 2-10-99
Chemical Name: TCE

Simulation Data

Title:	2149 E 5th Street, SVMW-3	
Number of Polygons:	1	
Timestep:	0.10	(years)
Simulation Time:	100.0	(years)
Output Time Interval	1.0	(years)
Profile Time Interval	10.0	(years)
Organic Carbon Distribution Coefficient	126	(ml/g)
Henry's Constant	0.30	
Water Solubility	1100	(mg/L)
Free Air Diffusion Coefficient	0.68	(m^2/day)

Polygon Data

Title:	SVMW-3	
Area	12,400	(feet^2)
Vertical Cell Dimension	1	(feet)
Recharge Rate	0.375	(feet/year)
Dry Bulk Density	1.89	(g/cm^2)
Effective Porosity	0.243	
Volumetric Water Content	0.044	
Soil Organic Carbon Content	0.0000847	
Concentration of Recharge Water	0	(mg/L)
Upper Boundary Condition	-1	(mg/L)
Lower Boundary Condition	-1	(mg/L)
Cell Number	53	
Initial Contaminant Concentration in Cells	A 0.0034 C 1.45 B 0.0007	(µg/kg)